

Table S5: QTL of SIM analysis across TEs. Chromosome (Chr.), position (Pos.), support interval (SI), p-value, proportion of phenotypic variance explained (R^2), and additive effects (Eff) of the founders Event (A), BAYP4535 (B), Ambition (C), Firl3565 (D), Format (E), Potenzial (F) and Bussard (G) relative to Julius are given for the traits powdery mildew (PM), septoria tritici blotch (STB), tan spot (TS), plant height (PH), ear emergence time (EET) and leaf angle distribution (LAD). The detection of a QTL within a test environment (TE) is specified, additionally.

Trait	Chr.	Pos. (cM)	SI (cM)	P-value	R^2 *	Eff(A)	Eff(B)	Eff(C)	Eff(D)	Eff(E)	Eff(F)	Eff(G)	TE
PM [1-9]					31.5								
	1A	3	2-3	4.5E-07	9.4	5.6	0.9	2.3	NA	2.4	2.4	2.9	17FS1
	3D	137	128-137	1.4E-02	4.8	-0.5	-0.8	-1.4	0.1	-1.3	0.4	-0.8	
	5A	16	14-38	7.1E-02	4.9	-0.5	0.3	-0.6	-0.1	-1.0	-1.0	0.4	
	6B	227	211-230	3.6E-05	6.7	-1.5	-0.7	-1.1	0.2	0.3	-1.5	-0.9	16RG, 17FS1
	7A	382	379-384	6.6E-06	12.8	-2.7	-1.3	-2.3	-1.4	-0.8	-1.0	-1.3	16RG, 17FS1
	7D	19	12-22	9.1E-02	5.3	4.8	-1.1	-5.8	NA	-0.2	-0.4	-0.5	
STB [%]					27.1								
	1A	23	23-23	6.6E-02	6.1	-2.1	-3.7	1.9	NA	-2.5	0.2	11.6	
	1B	347	341-356	5.7E-03	5.9	6.1	-0.3	4.8	-4.1	-1.2	-8.5	-9.0	17FS1
	2B	94	86-94	7.8E-02	5.3	-2.5	1.8	-7.1	NA	13.1	-5.2	-3.1	17FS1
	2B	181	155-188	6.1E-02	4.7	-25.6	-6.6	-10.8	NA	-6.5	-21.5	0.0	17FS1
	2B	243	222-254	3.0E-04	6.3	46.2	-2.1	-10.1	-14.1	5.3	21.9	4.5	16FS1, 17FS1
	2D	20	20-20	4.2E-06	8.5	-8.9	-5.9	1.6	-5.6	10.2	-8.7	3.4	16FS1, 17FS1
TS [%]	4B	31	27-43	3.4E-02	4.3	-2.8	-12.2	NA	-19.7	-19.9	-4.0	7.7	
					40.5								
	1A	23	23-23	8.0E-06	6.8	9.6	-1.4	2.5	NA	1.9	2.5	14.1	
	2A	90	83-94	1.9E-05	6.6	6.1	-0.6	0.5	4.7	6.2	-0.8	-6.0	17SL
	2B	151	135-157	1.3E-04	4.6	0.6	-5.5	-6.1	NA	0.9	4.4	0.9	
	2D	160	160-160	3.1E-05	6.7	-4.5	-2.5	-10.5	-7.0	-12.1	NA	-13.5	16_FS2, 17SL
	3D	82	81-88	4.0E-05	7.1	-10.4	-9.2	-5.9	-6.1	2.7	-5.7	-3.9	17_FS2, 17SL
	4B	170	117-175	2.4E-02	5.2	-5.8	-6.1	NA	-3.0	-7.7	-3.5	-3.8	
	5B	28	28-31	3.1E-03	5.0	-4.8	-1.8	-3.6	2.8	1.3	2.7	4.5	
	7A	148	148-151	3.1E-04	10.6	0.0	-6.6	-2.8	2.2	-0.6	-1.9	0.6	16_FS2, 17SL
	7A	371	366-373	3.0E-04	4.5	16.8	-4.1	6.9	3.8	1.3	4.1	5.5	

Table S5 (Continuation): QTL of SIM analysis across TEs. Chromosome (Chr.), position (Pos.), support interval (SI), p-value, proportion of phenotypic variance explained (R^2), and additive effects (Eff) of the founders Event (A), BAYP4535 (B), Ambition (C), Firl3565 (D), Format (E), Potenzial (F) and Bussard (G) relative to Julius are given for the traits powdery mildew (PM), septoria tritici blotch (STB), tan spot (TS), plant height (PH), ear emergence time (EET) and leaf angle distribution (LAD). The detection of a QTL within a test environment (TE) is specified, additionally.

Trait	Chr.	Pos. (cM)	SI (cM)	P-value	R^2 *	Eff(A)	Eff(B)	Eff(C)	Eff(D)	Eff(E)	Eff(F)	Eff(G)	TE
PH [cm]					53.0								
	4B	80	68-90	0.0E+00	9.2	0.7	-9.9	NA	-2.4	3.9	0.4	2.5	16FS1, 16FS2, 17FS1, 17FS2, 17SL
	4D	27	27-27	0.0E+00	33.6	-3.1	15.2	4.3	28.6	15.0	6.3	NA	16FS1, 16FS2, 17FS1, 17FS2, 17SL
	6A	130	130-130	1.7E-11	12.6	-0.5	1.5	-9.1	-3.5	-5.8	-9.2	0.2	17FS1, 17FS2
EET [DaM]					25.9								
	3A	230	213-230	5.7E-05	8.8	-0.7	0.6	1.2	1.5	1.6	0.1	0.1	16FS1, 16FS2, 17FS1, 17FS2, 17SL
	4A	80	67-89	1.2E-02	5.2	-0.8	-0.7	-2.4	-0.7	0.1	-1.0	-2.1	17SL
	5A	182	180-185	3.1E-04	7.6	0.7	1.2	0.8	0.5	0.3	1.4	1.5	16FS1, 16FS2, 17FS1, 17FS2
	5B	273	268-276	3.0E-02	5.7	-0.6	-0.4	-1.9	-0.3	-0.9	1.6	-0.5	17FS1
	6A	251	250-252	1.3E-03	5.0	-0.1	0.0	0.7	-0.8	0.0	-0.9	NA	16FS1
	7A	99	87-122	9.7E-03	5.5	-0.8	-0.1	-1.0	-1.1	0.0	-0.4	-0.5	16FS1, 16FS2, 17SL
LAD [1-9]					32.3								
	2B	92	92-100	3.9E-02	5.8	-0.7	0.2	0.8	NA	0.0	0.3	-0.1	
	2B	174	167-180	9.6E-10	14.4	-1.1	0.7	-0.1	NA	0.3	-0.3	0.8	16FS1, 16FS2
	2D	166	164-167	2.1E-04	5.6	-0.7	0.3	1.3	1.1	-0.2	NA	-2.3	17FS1
	4B	80	70-89	2.9E-03	6.4	0.8	1.0	NA	0.5	0.5	-0.4	0.4	16FS1
	6A	40	36-46	1.9E-05	6.6	0.1	-0.4	-0.7	-0.7	0.4	0.3	0.2	16FS1
	7D	160	160-163	5.6E-03	4.6	-1.0	NA	NA	-2.6	-2.0	NA	NA	17SL

* For each trait the explained phenotypic variance of the model fitting all detected QTL simultaneously is given in bold values above the individual R^2 values for each QTL.